

Your Health Research Dollars at Work

An Update from the Canadian Institutes of Health Research

President's Message



CIHR Welcomes New Investments for Health Research and S&T

Establishing a successful knowledge-based economy requires a strong foundation in science and technology.

With Budget 2007, the Government of Canada is building on existing strengths, focusing efforts in key areas where Canada can achieve global excellence and working to align research investments with the private sector to make a real impact on the lives of Canadians and in the market.

CIHR is well positioned to support these objectives. We use excellence as a central factor for funding research and developing knowledge for Canadians and fund only the very best grant applications. We are targeting new investments to areas where Canada has the potential to be a world leader, such as clinical research and cancer. We are enhancing commercialization of Canadian discoveries by facilitating links between universities and the private sector.

As an example, our successful Proof of Principle Program has helped launch new companies such as Amorfix Life Sciences. In 2006, Amorfix received the Technology Pioneer Award from the World Economic Forum, the only Canadian company selected amongst only 47 in the world.

In all of this, CIHR is fully accountable to the Canadian people on the results of our investments and in terms of overall value for money.

Dr. Alan Bernstein, O.C., FRSC
President, Canadian Institutes of Health Research

CIHR-FUNDED STUDY

Surviving a Heart Attack Starts with First-line Responders



Acting District Chief Mario Trevellin (right) hands out one of the first new defibrillators to Toronto Fire Services Captain Jason Verlaan.

CIHR has launched a major medical trial that will help emergency responders save more lives. On March 6, Toronto firefighters and Emergency Medical Services (EMS) personnel began patrolling the streets with new, state-of-the-art, semi-automatic defibrillators as part of the CIHR-funded Resuscitation Outcomes Consortium (ROC), which is studying new treatments for cardiac arrest and severe traumatic injury.

More than 30,000 Canadians die each year from cardiac arrest. Toronto Fire Services responds to more than 1,500 such arrests each year.

To avoid death, cardiac arrest victims must be treated within minutes with either defibrillation – to shock the abnormally beating heart back into a normal rhythm – or CPR, followed by other procedures by paramedics. This new generation of defibrillators improves both cardiopulmonary resuscitation and defibrillation at the scene of a cardiac arrest.

"We are very hopeful that patients participating in these trials will benefit," says Dr. Art Slutsky, Principal Investigator with ROC Toronto and Vice President of Research at St. Michael's Hospital. "EMS and fire personnel involved in the research have been trained in the most up-to-date and effective methods of treatment and all the therapies they are using have been shown to be potentially life-saving."

ROC involves public safety agencies, emergency medical services agencies, fire departments, regional hospitals and medical centres in 11 regions in Canada and the U.S.

About the Canadian Institutes of Health Research

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge and to catalyze its translation into improved health, more effective health services and products, and a strengthened Canadian health-care system. Composed of 13 Institutes, CIHR provides leadership and support to more than 10,000 health researchers and trainees across Canada.

NATIONAL

Aboriginal Peoples Given Stronger Voice in Health Research



Aboriginal peoples will now have greater involvement in the planning, execution and sharing of outcomes of research conducted with their communities, as a result of the new CIHR Guidelines for Health Research Involving Aboriginal People. Developed by CIHR Ethics Office in cooperation with Aboriginal communities across Canada, the Guidelines balance the pursuit of scientific excellence with Aboriginal values and traditions to improve the profound disparities in health between Aboriginal and non-Aboriginal communities. The Guidelines cover benefit sharing, community consent, secondary use of data and biological samples, translation of research summaries into Indigenous languages and the use of research agreements to reduce the potential for misunderstanding. CIHR has invested nearly \$57 million in 188 Aboriginal health research projects since 2001.

CIHR Awards \$217 Million for New Research

On April 5, the Government of Canada announced the recipients from across Canada of 589 health research grants worth \$217 million. The projects funded focus on a wide range of subjects, including hospital-acquired infections, cancer, and hormone replacement therapy. In making the announcement on behalf of Health Minister Tony Clement, Parliamentary Secretary Steven Fletcher said the projects will "contribute to improving the health of Canadians, strengthening our health-care system and building a prosperous and productive country."

Pandemic Research Given a \$4-Million Boost

Canada is strengthening its capacity to prevent and respond to a pandemic outbreak. CIHR has awarded more than \$4 million for 26 health research projects related to pandemic preparedness research, including vaccine development, epidemic control and the mental health of health-care practitioners in a pandemic situation. "Health research will help us understand the influenza virus and, most importantly, reduce its impact on the health of Canadians and people around the world," said Dr. Alan Bernstein, President of CIHR. "The work of these research teams will bolster Canadian and international efforts to defeat a potential global pandemic."

INTERNATIONAL

Canada Leads Global Genomics Project

Toronto, Oxford (U.K.), Stockholm (Sweden):

The largest ever Canadian-led international research project has now made more than 400 human protein structures freely available to the global research community – a landmark accomplishment that is fundamental to the discovery of new medicines. With major funding from CIHR, as well as other public and private sector partners, the Structural Genomics Consortium is transforming the world's approach to understanding the molecular basis of human health and diseases. Cytochroma Inc., an Ontario-based biotechnology company, is already using the structural information to expedite the development of new chemical entities in its drug discovery efforts. The Council of Canadian Academies recently identified genomics as a major science and technology strength for Canada.



The University of Toronto's Structural Genomics Team solved the protein structure for Axl-2, which is implicated in cancer and a genetic eye disorder. (Left to right: Drs. Sirano Dhe-Paganon, Xudong Huang and John Walker)

Rare Gene Leads to Pain-free Life

Canada, Switzerland, Italy, Argentina, U.S., France, U.K.:

A Vancouver company that was founded on CIHR-funded discoveries and a Canadian-led international research team have identified a rare gene that could one day lead to new drugs that help the 20% of Canadians who suffer from chronic pain. Dr. Simon Pimstone, President and CEO of Xenon Pharmaceuticals Inc., collaborated with Dr. Michael Hayden at the University of British Columbia and senior investigators from seven countries to identify the mutated gene that causes people to feel little or no pain. Xenon, a spin-off company of Dr. Hayden, is discovering the genes involved in a variety of human diseases, including heart disease and neurodegenerative disorders. The annual payroll of Xenon is about 10 times CIHR's total investment in the original research that led to its founding.

WESTERN CANADA

Pregnancy Hormone May Lessen Effects of MS

Calgary: A team of CIHR-funded researchers at the University of Calgary have discovered that a hormone produced during pregnancy may repair nerve damage caused by brain disease, raising hopes of a treatment for multiple sclerosis. A study on mice led by Drs. Samuel Weiss and V. Wee Yong of the Hotchkiss Brain Institute found the hormone prolactin – produced in pregnant women – encouraged the growth of myelin, the protective coating around nerve cells that transmits messages in the central nervous system. MS affects about 75,000 Canadians.

CIHR Mentor Helps Aspiring Winnipeg Scientist

Winnipeg: Ted Paranjothy, a Grade 12 student from Fort Richmond Collegiate in Winnipeg, has become the first Canadian ever to win the prestigious sanofi-aventis International BioGENEius Challenge – an annual competition for high-school students that recognizes outstanding research in biotechnology. Ted was officially selected as one of Canada's 2007 Top 20 Under 20, an award given by charitable organization Youth in Motion. Ted volunteers with Dr. Marek Los at the University of Manitoba on a CIHR-funded project dealing with the development of apoptin-based, targeted anticancer therapies. CIHR's SYNAPSE Youth Mentorship Initiative connects high-school students with CIHR researchers to provide opportunities for youth to advance their interests and abilities in health research.



Ted Paranjothy and his mentor Dr. Marek Los

Photo Credit: Manitoba Winnipeg Free Press, June 2008. Reprinted with permission.

Care Falls Short for People with Rheumatoid Arthritis

Vancouver: The majority of people with rheumatoid arthritis (RA) are not receiving the drugs they need for their disease, concludes a landmark CIHR-funded study led by Dr. Diane Lacaille at the University of British Columbia. An evaluation of 27,710 RA cases in British Columbia – the largest ever conducted – found that more than half are not using the medications considered essential for RA (known as DMARDs) and few are followed by rheumatologists. The research will help to develop targeted strategies to address the gaps in care.



Dr. Samuel Weiss and Calgary MS patient Diane Rogers examine microscopic details of the myelin sheath which surrounds and protects nerves.

Photo Credit: Ken Bendle

CENTRAL CANADA

Finding New Ways to Help People Salivate

Montreal: There is new hope for the more than 170,000 Canadians who have difficulty swallowing and who suffer severe tooth decay and infections as a result of a permanently dry mouth. Dr. Simon Tran, a CIHR-funded periodontist at McGill University, is using electro-stimulation devices and adult bone marrow in two separate CIHR projects to repair salivary glands that are damaged as a result of the autoimmune disease Sjögren's syndrome, or due to radiotherapy for head and neck cancer.



Dr. Simon Tran

Photo Credit: Claudio Collinger, McGill Communications

ALS Vaccine Shows Promise

Québec City: A Laval University-led research team is the first to develop a vaccine for amyotrophic lateral sclerosis (ALS), a progressive and fatal neurodegenerative disease that weakens and eventually destroys the central nervous system. The CIHR-supported study, led by Dr. Jean-Pierre Julien, tested a vaccine that delayed the onset of the disease in mice and prolonged their lives by about 10 %. ALS, also known as Lou Gehrig's disease, kills most patients within two to five years of diagnosis.



Dr. Jean-Pierre Julien

Company to License New Device for Low-back Injuries

Kingston and Toronto: CIHR is helping to move a promising new device for low-back injuries closer to market. Dr. Joan Stevenson of Queen's University and Dr. Mohammad Abdoli of Ryerson University are using CIHR's Proof of Principle (POP) Program to test a backpack-type unit – called the Personal Lift Assistive Device (PLAD) – that helps people rise. It could reduce the risk of recurrent low-back injuries in workers whose jobs require a lot of lifting. The researchers are currently in negotiations with a Canadian company to license the technology. The POP Program funds business development activities and market research to speed prototype development of commercially promising research.

Common Procedure to Unblock Arteries Not Always Best

Hamilton (Ontario), Buffalo (New York): Undergoing surgery to remove coronary blockages in patients with chronic stable angina is no more effective in preventing future heart attacks than drug therapy and a healthy lifestyle, according to research funded by the CIHR/Rx&D Collaborative Research Program and the U.S. Veteran Affairs Department. Percutaneous coronary interventions (PCI), also known as angioplasties, are performed more than one million times a year in the U.S. alone. The Clinical Outcomes Utilizing Revascularization and Aggressive DruG Evaluation (COURAGE) trial followed 2,287 patients from Canada and the U.S. for up to seven years.

CIHR's *Your Health Research Dollars at Work* is available to Members of Parliament, Senators and policy-makers to communicate the benefits of the Government of Canada's investment in health research. News items can be reproduced for use in householders and other communications materials. Visit CIHR's website to download this issue in electronic form: www.cihr-irsc.gc.ca.

CIHR also produces an information kit called *Your Health Research Dollars at Work 2005-2006*, that provides a snapshot of the research results that are making a difference to the health of Canadians, to our health-care system and to our economy. If you would like a copy, please contact Caroline Kay, CIHR's Production Coordinator, at ckay@cihr-irsc.gc.ca.

EASTERN CANADA



Dr. Barbara Neis

Photo Credit: Shalagh O'leary

Improving Workplace Safety for Food Processors

St. John's: A CIHR-funded project led by Dr. Barbara Neis is instituting new workplace procedures that make tasks such as snow crab processing and knife preparation of turbot safer for seafood processing workers. The research team from Memorial University and the University of Quebec in Montreal is translating the results of a CIHR-funded project in Quebec, led by Dr. Nicole Vézina, that evaluated ergonomic tools for pork processing into safer workplace practices for Atlantic Canadian chicken and seafood processors. During phase one of the research, Dr. Neis and her team developed tools to promote awareness of occupational asthma related to shellfish.

How Effective Is Nova Scotia's Autism Treatment Program?

Halifax: Dr. Isabel Smith wants to find out if large-scale early intervention programs for autism – such as the province-wide one in Nova Scotia – greatly improve the lives of children. The Dalhousie University researcher is studying young children with autism from Nova Scotia communities before, during and after their participation in the program to compare their communication and problem-solving skills and social interactions, as well as the intervention program's effects on families, such as on parents' stress levels. The results will help policy-makers and clinicians provide the best care possible for children with autism.

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